

CLAIMS

What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. A data storage cartridge, comprising:
 - a storage medium;
 - a housing having at least one media access aperture, the storage medium being provided within the housing such that at least one media access aperture exposes a surface of the storage medium; and
 - a shutter assembly movable from a closed position to an open position, said shutter assembly comprising:
 - a cover configured to cover at least one media access aperture when the shutter assembly is in the closed position and to expose at least one media access aperture when the shutter assembly is in the open position; and
 - a shutter cam coupled to the cover, said shutter cam including a lock assembly and a cam portion.
2. The data storage cartridge of claim 1, wherein said storage medium comprises a rotatable disk-shaped storage medium.
3. The data storage cartridge of claim 2, wherein at least one media access aperture exposes a radial region of the storage medium.
4. The data storage cartridge of claim 2, wherein said housing comprises:
 - a first media access aperture on a top side of the housing exposing a top side of a first radial region of the storage medium; and
 - a second media access aperture on a bottom side of the housing exposing a bottom side of the first radial region of the storage medium.
5. The data storage cartridge of claim 1, wherein said storage medium comprises a holographic storage medium.
6. The data storage cartridge of claim 1, wherein:

said lock assembly comprises a lock actuator having a locked position and an unlocked position, such that when said lock actuator is in the locked position, the shutter assembly is inhibited from moving from the closed position to the open position, and when said lock actuator is in the unlocked position, the shutter assembly is permitted to move from the closed position to the open position

7. The data storage cartridge of claim 6, wherein a direction of movement of the lock actuator from the locked position to the unlocked position is the same as a direction of movement of the shutter assembly from the closed position to the open position.

8. The data storage cartridge of claim 6, wherein:
 said lock actuator comprises a projection that protrudes from a lock actuator aperture when the lock actuator is in the locked position and is recessed from the lock actuator aperture when the lock actuator is in the unlocked position.

9. The data storage cartridge of claim 8, wherein:
 said shutter cam defines a detent on a side of the housing; and
 said lock actuator aperture is provided within the detent.

10. The data storage cartridge of claim 9, wherein
 said detent is defined by at least a back side and two opposing sides; and
 said lock actuator aperture is provided on one of the two opposing sides.

11. The data storage cartridge of claim 1, wherein at least one media access aperture exposes a partial surface of the storage medium.

12. A data storage cartridge, comprising:
 a holographic storage medium;
 a housing having at least one media access aperture, the storage medium being provided within the housing such that at least one media access aperture exposes a surface of the storage medium; and
 a shutter assembly movable from a closed position to an open position, said shutter assembly comprising:

a cover configured to cover at least one media access aperture when the shutter assembly is in the closed position and to expose at least one media access aperture when the shutter assembly is in the open position; and
a lock assembly for locking the cover in the closed position.

13. A data drive assembly, comprising:
 - a data transfer mechanism for reading data from a storage medium contained in a data storage cartridge; and
 - a shutter opening assembly configured to unlock and open a shutter on the data storage cartridge.
14. The data drive assembly of claim 13, wherein:
the shutter opening assembly comprises a boss configured to engage a lock release portion of the data storage cartridge.
15. The data drive assembly of claim 14, wherein:
the boss is further configured to apply a lateral force onto the shutter of the data storage cartridge to move the shutter into an open position.
16. The data drive assembly of claim 15, wherein:
the shutter opening assembly comprises a rotatable body portion, wherein the boss is positioned distal from the axis of rotation of the body portion.
17. The data drive assembly of claim 13, further comprising:
a data storage cartridge having a shutter retained in the open position by the shutter opening assembly.
18. A method of operating a data drive assembly configured to read data from a data storage cartridge comprising a storage medium contained within a housing, said housing comprising at least one media access aperture and a shutter assembly covering at least one media access aperture when in a closed position, the method comprising:
unlocking a lock in the shutter assembly using a shutter opener; and
sliding the shutter assembly into an open position using the shutter opener.

19. The method of claim 18, wherein said unlocking the lock in the shutter assembly comprises:

depressing a lock actuator with a boss portion of the shutter opener.

20. The method of claim 19, further comprising:

translating the data storage cartridge forward towards the boss portion of the shutter

opener, said shutter opener being configured to rotate about an axis of rotation, the
boss portion being distal from the axis of rotation;

after the data storage cartridge contacts the boss portion of the shutter opener, causing the
data storage cartridge to apply a forward force on the boss portion, thereby causing
the shutter opener to rotate about the axis of rotation, wherein the rotation of the
shutter opener causes the boss portion to travel laterally across the data storage
cartridge.

21. The method of claim 18, further comprising:

reading data from a holographic storage medium contained in the data storage cartridge.